



# 3M™ Scotchcal™ Graphic Film

Series IJ40

# 3M™ Controltac™ Print Film

Series 40C

## Product Bulletin

### Product Description

These polymeric calendered films offer great versatility making them perfect for indoor and outdoor signs and fleet graphics.

Product variants with Comply™ adhesive also have air release channels for fast and easy, bubble-free graphic installations.

<b>Product Line</b>	Screen and inkjet printing	IJ40-10	white, opaque, glossy, permanent adhesive (grey).
		IJ40-10T	white, opaque, glossy, permanent adhesive (clear).
		IJ40-10R	white, opaque, glossy, removable adhesive (grey).
		IJ40-20	white, opaque, matte, permanent adhesive (grey).
		IJ40-20R	white, opaque, matte, removable adhesive (grey).
		40C-10	white, opaque, glossy, permanent adhesive (grey) with Comply™.
		40C-10R	white, opaque, glossy, removable adhesive (grey) with Comply™.
		40C-20	white, opaque, matte, permanent adhesive (grey) with Comply™.
		40C-20R	white, opaque, matte, removable adhesive (grey) with Comply™.
		IJ40-114	transparent, glossy, permanent adhesive.
		IJ40-124	transparent, matte, permanent adhesive.
		IJ40-124R	transparent, matte, removable adhesive.

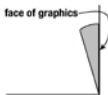
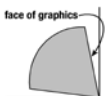
### Product Characteristics

These are typical values for unprocessed products.

Contact your 3M representative for a custom specification.

#### Physical & Application

Material	calendered vinyl (polymeric)	
Surface finish	glossy and matte (see product line)	
Thickness (film)	75 µm (0.075 mm)	
Adhesive type	solvent acrylic, pressure-sensitive	
	In addition: product variants with Comply™ adhesive have air release channels	
Adhesive appearance	grey, except for transparent versions; some white films with clear adhesive available (indicated with letter 'T')	
	versions with Comply:	grey
Liner	back-sided Polyethylene coated paper	
	versions with Comply:	double-sided Polyethylene coated paper
Adhesion	approx. 16 N/25 mm	FTM 1: 180° peel, substrate: glass; cond: 24 h 23°C/50%RH
	removable films of series	approx. 6 N/25 mm
Application method	wet or dry	
	versions with Comply:	dry only!
Applied shrinkage	< 0.4 mm FTM 14	

	Application temperature minimum (air and substrate)	+10°C +10°C	for flat surfaces for curved to corrugated surfaces with and without rivets
	Service temperature after application	-50°C to +90°C	
	Surface type	flat to simple curved	
	Substrate type	aluminum, glass, PMMA, PC*, ABS, paint	
		*Might require drying with heat before use	
	Graphic removal	Removable without heat and/or chemicals from supported substrates.  Statement given for removable versions only!  No liability is given for ease or speed of removal of any graphic. Pay attention to adequate air and substrate temperature.	
Storage	Shelf life	Use within two years from the date of manufacture on the sealed original box. Use within one year after opening the box.	
	Storage conditions	+4°C to +40°C, out of sunlight, original container in clean and dry area.	
Flammability	Flammability standards are different from country to country. Ask your local 3M contact for details, please.		
Durability	Unprocessed film	The following durability data are given for unprocessed film only!	
	3M™ Performance Guarantee and MCS™ Warranty	In addition, 3M provides a guarantee/warranty on a finished applied graphic within the framework of 3M™ Performance Guarantee and/or 3M™ MCS™ warranty programs. Visit <a href="http://www.3mgraphics.com">www.3mgraphics.com</a> for getting more details about 3M's comprehensive graphic solutions.	
	Climatic zones	Graphic durability is largely determined by the climate and the angle of exposure. Find below a table showing the durability of a product according to the angle of exposure and the geographical location of the application.  Zone 1     Northern Europe, Italy (north of Rome), Russia Zone 2     Mediterranean area without North Africa, South Africa Zone 3     Gulf area, Africa	
Exposure types	Vertical:		The face of the graphic is ±10° from vertical.
	Non-vertical:		The face of the graphic is greater than 10° from vertical and greater than 5° from horizontal.
	Interior:	Interior means an application inside a building without direct exposure to sunlight.	

<b>Vertical outdoor exposure</b>	<b>Zone 1</b>	<b>Zone 2</b>	<b>Zone 3</b>
white	7 years	6 years	4 years
transparent	5 years	4 years	3 years
<b>Non-vertical outdoor exposure</b>	<b>Zone 1</b>	<b>Zone 2</b>	<b>Zone 3</b>
white	3.5 years	3 years	2 years
transparent	2.5 years	2 years	1.5 years
<b>Interior application</b>	<b>Zone 1</b>	<b>Zone 2</b>	<b>Zone 3</b>
interior	7 years	7 years	7 years

## Limitations of End Uses

Graphics applied to	<ul style="list-style-type: none"> <li>- flexible substrates incl. 3M™ Panagraphics™ III Wide Width Flexible Substrate.</li> <li>- low surface energy substrates or substrates with low surface energy coating.</li> <li>- other than flat or simply curved surfaces.</li> <li>- painted or unpainted wallboards, gypsum boards and wallpapers.</li> <li>- stainless steel.</li> <li>- surfaces that are not clean and smooth.</li> <li>- surfaces with poor paint to substrate adhesion.</li> </ul>
Graphic removal from	<ul style="list-style-type: none"> <li>- signs or existing graphics that must remain intact.</li> </ul>
Graphics subjected to	<ul style="list-style-type: none"> <li>- gasoline vapors or spills.</li> </ul>
Important Notice	<ul style="list-style-type: none"> <li>- 3M Commercial Solutions products are not tested against automotive manufacturer specifications!</li> <li>- Due to increasing winding-tension towards the roll core, surface impressions might occur with rolls of a length of more than 200 m.</li> </ul>

## Graphics Manufacturing

Graphic protection can improve the appearance, performance and durability of printed graphics. Any printed graphic exposed to abrasive conditions (including vehicles), harsh cleaners or chemicals must include graphic protection in order to be warranted.

When to use an overprint clear or overlamine	See instruction bulletin GPO 'graphic protection options' for further information about selection and use of protective overlaminates and printable clears.
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[> Product Bulletin Graphic Protection Options <](#)

Shipping finished graphics	Flat, or rolled film side out on 130 mm (5 inch) or larger core. These methods help to prevent the liner from wrinkling or application tape, if used, from popping off.
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## Converting Information Inkjet Printing

Adequately Dry Graphics	<p>A too high total physical ink amount on the film results in media characteristic changes, inadequate drying, overlamine lifting, and/or poor graphic performance. The maximum recommended total ink coverage for this film is 270%.</p> <p>Inadequate drying can result in graphic failure including curling, increased shrinkage and adhesion failure, which are not covered under warranty. Build enough time into your process to ensure adequate drying of the graphic.</p> <p>Poorly dried film becomes soft and stretchy, and the adhesive becomes too aggressive. 3M recommends at least a minimum drying time of 24 hrs before further processing. Dry the graphic unrolled or at least as a loose wound roll standing upright.</p>
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## Converting Information

Formulations and processing conditions can affect ink durability. Refer to the 3M Product and Instruction Bulletins for your ink for limitations and proper usage. Graphic protection can improve the appearance, performance and durability of your graphic.

<b>Screen Printing</b>   Abrasion and Loss of Gloss	<p>A clear coat also prevents chalking on unprinted films. Use equipment designed to handle high viscosity materials and make sure the coating is evenly applied to the specifications given in the clear's Instruction Bulletin.</p> <p>Abrasion damage and loss of gloss are not covered by any 3M warranty. This is considered normal wear and tear.</p>
<b>Application</b>	<p>See product bulletin ATR 'application tape recommendations' for information about selection and use of suitable application tapes for this product, please.</p> <p style="text-align: center;"><a href="#">&gt; Product Bulletin Application Tape Recommendations &lt;</a></p> <p>Refer to Instruction Bulletin 5.1 'select and prepare substrates for graphic application', for general application information.</p> <p style="text-align: center;"><a href="#">&gt;Instruction Bulletin 5.1 'select and prepare substrates for graphic application'&lt;</a></p>
<b>Maintenance and Cleaning</b>	<p>Use a cleaner designed for high-quality painted surfaces. The cleaner must be wet, non-abrasive, without strong solvents, and have a pH value between 3 and 11 (neither strongly acidic nor strongly alkaline).</p> <p>Refer to Instruction Bulletin 6.5 'storage, handling, maintenance and removal of films and sheetings', for general maintenance and cleaning information.</p> <p style="text-align: center;"><a href="#">&gt;Instruction Bulletin 6.5 'Storage, Handling, Maintenance and Removal of Films and Sheetings'&lt;</a></p>
<b>Remarks</b> Important notice	<p>This bulletin provides technical information only.</p> <p>All questions of warranty and liability relating to this product are governed by the terms and conditions of the sale, subject, where applicable, to the prevailing law.</p> <p>Before using, the user must determine the suitability of the product for its required or intended use, and the user assumes all risk and liability whatsoever in connection therewith.</p>
Additional Information	<p>Visit the web site of your local subsidiary at <a href="http://www.3Mgraphics.com">www.3Mgraphics.com</a> for getting:</p> <ul style="list-style-type: none"> <li>- more details about 3M™ MCS™ Warranty and 3M™ Performance Guarantee</li> <li>- additional instruction bulletins</li> <li>- a complete product overview about materials 3M is offering</li> </ul>



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